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Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

24.   (currently amended) An image processing apparatus for processing imaging data in a

plurality of spectral bands and fusing the data into a color image, comprising:

    [[two]] one or more imaging sensors;

    at least [[two]] three image-acquiring sensor areas located on said one or more imaging

sensors, wherein each said sensor area is sensitive to a different spectral band than at least one

other of said sensor areas and generates an image output representative of an acquired image in

the spectral band to which the sensor area is sensitive;

    a frame grabber connected to said imaging sensors

    a general purpose computer connected to said imaging sensors for executing in real time

        a registration algorithm for scaling and registering said image outputs executed ;

        and

        a color fusion algorithm for combining said image outputs into a single image.

25.   (previously presented) The apparatus of claim 24, further comprising a screen display.

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26.   (previously presented) The apparatus of claim 25, further comprising an operator

interface for allowing operator input in processing of said image outputs.

27.   (currently amended) The apparatus of claim 24, wherein said color fusion algorithm is

simple color fusion whereby each said sensor area image output is separately assigned to a

different display color based on wavelength.

28.   (currently amended) The apparatus of claim 24, wherein said color fusion algorithm is

based on principle component color fusion whereby said sensor area outputs are fused into one

image.

.29.   (previously presented) The apparatus of claim 28, wherein said principle component

color fusion de-saturates said fused output image.

30.   (previously presented) The apparatus of claim 24, further comprising one or more

additional sensors on which some of said plurality of imaging sensor areas are located.

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31.   (previously presented) The apparatus of claim 24, wherein said sensors comprise three

sensors, and each said sensor is configured to map its image to an associated color channel, and

wherein said algorithm is configured to combine said color channels into a color image.

32.   (previously presented) The apparatus as in claim 31, wherein said three sensors are

respectively sensitive to any combination of visible, near infrared (NIR), short-wave infrared

(SWIR), mid-wave infrared (MWIR), long-wave infrared (LWIR) spectral bands.

33.   (currently amended) A method for producing a real-time color fused image, comprising

the steps of:

        providing one or more imaging sensors including at least [[two]] three image-acquiring

sensor areas located on said one or more imaging sensors, wherein each said sensor area is

sensitive to a different spectral band than at least one other of said sensor areas;

        exposing said at least [[two]] three sensor-areas to an image, said at least [[two]] three

sensor areas thereby each acquiring said image [[and generating]] and generating an image

output representative of said acquired image in the spectral band to which the sensor area is

sensitive;

        providing a frame grabber for acquiring said image;

        scaling said image outputs of said sensor areas;

        providing a computer for executing a color fusion algorithm and a registration algorithm;

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39.   (previously presented) The method as in claim 33, wherein said three sensors are

respectively sensitive to any combination of visible, near infrared (NIR), short-wave infrared

(SWIR), mid-wave infrared (MWIR), long-wave infrared (LWIR) spectral bands.

40.   (previously presented) The method as in claim 33, wherein said processing and fusing of

said image occurs in real time.

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registering said image outputs; and

color fusing said image outputs into a single image.

34.   (previously presented) The method as in claim 33, further comprising displaying said

image outputs on a screen display.

35.   (previously presented) The method as in claim 34, further comprising providing an

operator interface for allowing operator input in processing of said image outputs.

36.   (currently amended) The method as in claim 33, wherein said color fusing algorithm is

simple color fusion whereby each said sensor area image output is separately assigned to a

different display color based on wavelength.

37.   (currently amended) The method as in claim 33, wherein said color fusing is based on

principle component color fusion whereby said sensor area outputs are fused into one image.

38.   (previously presented) The method as in claim 33, wherein said image is acquired by

three sensors, each said sensor is configured to map its image to an associated color channel, and

wherein said fusing combines said color channels into a color image.

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